

Meeting of January 5, 2006

1:30-3:00 p.m.

**9th Floor Conference Room – WV HEPC
Charleston, WV**

**Audio Conference Phone Number: (866) 453-5550
Participant Pin Number: 6723669#**

AGENDA

- I. Introductions**
- II. Approval of Minutes**
- III. Advisory Forum Reports**
 - A. Computer Center Directors Advisory Forum
 - B. Instructional Technology Advisory Forum
 - C. Networking Advisory Forum
- IV. Quarterly Financial Report/FY2006 Budget Update**
- V. New Audio Conferencing Service**
- VI. WVNET Strategic Plan**
- VII. Higher Education Facilities Information System (HEFIS) Presentation**
- VIII. Open-Source Software Review**
- IX. Next Meeting**
 - A. 1:30 p.m. on May 11, 2006 at WVNET in Morgantown

Minutes
WVNET Computer Advisory Board
August 9, 2005

The WVNET Computer Advisory Board (CAB) met on August 9, 2005, during the WV Statewide Technology Conference in Morgantown, West Virginia. The following persons participated: Mr. Dennis Taylor (Chair), Dr. Tom Blevins, Dr. Jan Fox, Dr. Roxann Humbert, Dr. Arnold Miller, Mr. Sid Morrison, Dr. Michael Mullen, Dr. Martin Olshinsky, Mr. Allen Taylor, Ms. Darlene Thomas, and Ms. Brenda Williams. Also participating were: Mr. Henry Blosser, Ms. Roberta Haddix, Mr. Jay Justice, Mr. Greg Kidder, and Mr. Ed Ward.

Dr. Jan Fox made a motion that the minutes from the June 8, 2005, meeting be approved. Ms. Brenda Williams seconded the motion. The motion was unanimously passed.

Dr. Arnold Miller reported on the last meeting of the Computer Center Directors' Advisory Forum. The Computer Center Directors' Advisory Forum brought forth the following resolution seeking assistance in resolving problems delivering course content and video to the K-12 system:

“The WVNET Computer Center Directors' Advisory Forum is pleased with the number of requests from K-12 schools to provide distance learning centers and/or streaming media content through the web to students. Although higher education is happy to provide services to K-12 schools, most only have two external IP addresses that can connect WVNET to the K-12 network. These two IP addresses are being used by each of the K-12 schools for the router and the school's web page. In order to establish a two-way video connection, a separate IP address is required. Therefore, the WVNET Computer Center Directors feel it would be in the best interest of K-12 students for the Department of Education to provide an additional IP address to each school, so that the K-12 sites could receive educational classes from higher education institutions within West Virginia.

“Most administrators/educators in higher education and K-12 do not know that two networks exist for education. One is the K-12 network and the other is WVNET. While both networks are connected, in order for video streams to be of acceptable quality and also to minimize bandwidth utilization, quality of service (QoS) and multicasting are needed on both networks. QoS is already available on the higher education network and multicasting will be available by the end of April. The WVNET Computer Center Directors are asking for your support in providing educational resources to K-12 students through the K-12 network. K-12 sites are constantly asking for services that higher education cannot provide until these issues are addressed. Any help in resolving these issues will be greatly appreciated as together we move education forward for all of West Virginia.”

The Directors next meeting will be immediately following the Computer Advisory Board meeting.

Dr. Roxann Humbert reported the Instructional Technology Advisory Forum has met twice recently and is working on statewide licenses. Roxann provided WVNET Technology

Procurement Officer Greg Kidder with information for contracts. The group talked about an online tutoring and the proctoring network. Educational Technology Director Nancy Sturm attended their last meeting and will serve on the forum hereinafter.

Mr. Allen Taylor reported on the Networking Advisory Forum. A conference call between Allen Taylor, Henry Blosser and Ed Ward was recently held. It is felt that the Networking Advisory Forum should consist of 12 voting members with 3 ex-officio members, and the group should be more technically based.

Dr. Jan Fox questioned whether or not the ITC (Interagency Technology Council) is still viable. The Computer Advisory Board agreed that a subset of the CAB membership should meet to discuss the matter of WVNET, which would then be carried forward to the Chief Technology Officer. Members designated to serve on the subcommittee include: Dennis Taylor, Jan Fox, Sid Morrison, Tom Blevins, David Thompson, and Henry Blosser. The group agreed to meet on Wednesday, August 10, 2005.

Mr. Greg Kidder discussed systemwide contracts. WVNET provides centralized purchasing for higher education comprising a variety of technology-related products and services. A review of the current systemwide contracts provided through this service was requested, and a hard-copy listing of those contracts was provided to CAB members. Many of the systemwide contracts were last bid in the year 2000 for 10 years with one-year renewals. WVNET CAB members agreed that they would like to see contract usage tracked, and the vendor made responsible for reporting on what has been purchased off of the contract. Mr. Sid Morrison commented that WVU is using the contracts heavily and cautioned touching the 10-year contracts due to the deep discounts involved. Dr. Jan Fox would like to see more academic products and will work with Greg and other WVNET staff to get him information on institutions that use such contracts.

WVNET Associate Director Jay Justice discussed the issue of modem accounts and recommended approval by the WVNET CAB involving a policy for WVNET to continue the delivery of modem services until projected costs exceed projected revenues. There are a number of variables that affect the costs for the modem accounts. The three major cost factors currently are personnel and communications facilities to the aggregation points, and the finance payments for the modem equipment itself. Regarding communications facilities, the contract that WVNET has with Verizon ends in November 2005 and WVNET will renew on a monthly contract basis at that time to maintain maximum flexibility. Prior to the end of the contract, the early-termination fees would offset almost all of the projected savings. However, since the number of modem accounts - and therefore, the usage - has been declining over the term of the contract, there are some savings that can be realized at the end of the contract. WVNET will cancel 1 DS3 circuit and 18 DS1 facilities at that time, for a projected monthly savings of \$11,454. Additionally, finance payments for the modem equipment will end during this fiscal year, saving another \$2,274 per month. The combination of the non-personnel savings is projected to permit the loss of another 1,000 accounts before costs exceed revenues for this cost center. It was noted that as broadband penetration increases, there will be some core customers who either do not have broadband available to them or who do not perceive sufficient value in broadband for the additional cost. WVNET's proposed resolution establishes the CAB's endorsement of WVNET

continuing to operate the modem service, while monitoring the costs and revenues to anticipate a time when costs are expected to exceed revenues. At a point where a shortfall is projected for a coming fiscal year, WVNET will consult with the Computer Advisory Board as part of the budget preparation for the year when the shortfall is expected to begin, so that appropriate consideration of alternatives can occur prior to budget finalization. If a decision is made to discontinue the modem service, existing customers will receive at least six months prior notice. Dennis Taylor emphasized the political ramifications associated with the discontinuation of the modem service in terms of legislators and their support staff. Mr. Allen Taylor made a motion that the WVNET Computer Advisory Board approve the policy as presented for WVNET to continue the delivery of modem services until projected costs exceed projected revenues. Dr. Jan Fox seconded the motion. The motion was unanimously passed.

Mr. Dennis Taylor briefly discussed the agenda item involving the SCT Banner student contract dispute. Over the last several months, staff from the Higher Education Policy Commission, Council for Community and Technical College Education, and WVNET have been involved in a contract dispute with representatives of Sungard SCT over whether the number of "Oracle sites" using Banner Student software exceeds the number of licenses purchased. On July 6, 2005, representatives of Sungard SCT met with Commission, Council and WVNET staff members to discuss the dispute. At the end of that meeting, Sungard SCT agreed to provide a written proposal to resolve the dispute. To date, the proposal has not been received. Initially, Sungard SCT representatives also asserted that the number of Banner Finance licenses had been exceeded, but have since agreed that is not the case.

Informational agenda items involving Open Source Software Review and Quarterly Financial Report/FY2006 Budget Update were included with the meeting materials.

The next WVNET Computer Advisory Board meeting will be held on November 1, 2005, at the West Virginia Higher Education Policy Commission in Charleston.

Dr. Jan Fox made a motion that the meeting be adjourned. Dr. Tom Blevins seconded the motion. The motion was unanimously passed.

WVNET Computer Advisory Board
January 5, 2006

ITEM: FY06 First Quarter Financial Reports

RECOMMENDED RESOLUTION: Information Item

STAFF MEMBER: Roberta Haddix

BACKGROUND:

The FY06 First Quarter Financial Report consists of four (4) items. These are as follows:

- FY06 Variance Analysis for the Quarter Ending September 30, 2005.
- Budget Status for the Quarter Ending September 30, 2005.
- FY06 Budget Amendments for the Quarter Ending September 30, 2005.
- WVNET Calculated Cash Reserve Summary (Fund 4780).

The FY06 Variance Analysis for the Quarter Ending September 30, 2005 lists the FIMS budget line items in which more than 25% of the total amount budgeted for the year has been spent as of September 30, 2005. Line items which are over 25% are investigated and an explanation is given for the variance. In some cases, it is not unusual or unexpected if more than 25% is spent. However, in other cases, a percentage over 25% could indicate a line item in danger of going over budget for the year. In either case an explanation is given.

The Budget Status for the Quarter Ending September 30, 2005 uses a new format from FY05. An additional column is added for FY06 budget amendments. The first column in the report is the FY06 budget as approved. The second column is the FY06 budget amendments to date. The third column is the FY06 amended budget. The fourth column is the year to date amount collected or expensed. The fifth column is the FY06 balance remaining and the last column is the percent of the FY06 amended budget used. As of September 30, 2005, WVNET had a cash balance of \$2,833,616. This is the result of \$2,064,630 in revenues and \$2,831,898 in expenses.

The FY06 Budget Amendments for the Quarter Ending September 30, 2005 shows the increase or decrease in the budgeted amount of those line items affected. An explanation is given for the changes. In the WVNET budget revenues and expenses are always equal. Therefore, the total change in expected revenues will equal the expected change in expenses. The explanation for a change, including the source of any additional funds needed, is given in the expense section of the report. Pass-through items automatically result in an increase or decrease in revenues. Pass-through items have been marked by an asterisk. As of September 30, 2005 WVNET has a net increase in the budget of \$109,091.

The WVNET Calculated Cash Reserve Summary (for fund 4780) shows the estimated reserve necessary based on the prior twelve (12) month's activity. The average difference is used to estimate a surplus over the necessary reserve or a reserve deficit. The chart also displays the actual cash flow for each month. As of September 30, 2005 WVNET shows a surplus for FY06 of \$134,429.

**West Virginia Network for Educational Telecomputing
FY 2006 Variance Analysis for the Quarter Ending September 30, 2005**

<u>Budget Line Item</u>	<u>Used</u>	<u>Explanation</u>
<i>Office Expense</i>	28%	No unusual purchases noted. Will continue to monitor.
<i>Contractual and Professional</i>	46%	\$75,000 was budgeted for SCT committed services. \$42,209 has been expended.
		Modem reimbursements for the 4 th quarter of FY05 were paid.
<i>Association Dues</i>	73%	Of the total amount budgeted for this line item, 73% is for Educause dues. This is always paid in full in July of each year.
<i>Computer Expenses <5,000</i>	97%	The largest expense budgeted to this line item is the Microsoft Campus Agreement. The entire amount was paid in July 2005.
		The second largest expense is for SAS software. The entire amount was paid in August 2005.
<i>Office and Communication Equipment</i>	89%	UPS / Generator paid in full in July 2005.
<i>Payment of Claims</i>	100%	Outstanding Verizon phone bills were paid in August 2005.
<i>Debt Service</i>	31%	Payments were made on the UPS / Generator prior to payoff.
		Modem lease will be paid in full prior to year end.
<i>Computer Software</i>	73%	WebCT Campus Edition license fees for FY06 were paid in July 2005.
		Additional Oracle licenses for Fairmont State were paid for in August 2005.
		Annual fee for HP software renewal and maintenance paid in August 2005.

**West Virginia Network for Educational Telecomputing
Budget Status for the Quarter Ending September 30, 2005**

FY 2006 Budget As Approved	FY 2006 Budget Amendments	FY 2006 Amended Budget	FY 2006 YTD 07/01 -9/30	FY 2006 Balance	% of FY 2006 Budget
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Beginning Cash Balance

\$3,600,884

REVENUES:

State Appropriation	\$1,851,198		\$1,851,198	\$370,240	\$1,480,958	20%
HERF Funding	\$200,000		\$200,000	\$100,000	\$100,000	50%
Other Revenues	\$7,043,800	\$109,091	\$7,152,891	\$1,594,390	\$5,558,501	22%
	\$9,094,998	\$109,091	\$9,204,089	\$2,064,630	\$7,139,459	22%

EXPENDITURES:

Personal Services	\$2,292,308		\$2,292,308	\$583,596	\$1,708,712	25%
Fringe Benefits	\$573,260		\$573,260	\$141,109	\$432,151	25%
Office Expense	\$50,306		\$50,306	\$14,006	\$36,300	28%
Printing and Binding	\$7,000		\$7,000	\$0	\$7,000	0%
Rent (Storage space)	\$10,500		\$10,500	\$0	\$10,500	0%
Utilities (Electricity)	\$127,018		\$127,018	\$31,350	\$95,667	25%
Telecommunications	\$2,368,440		\$2,368,440	\$548,326	\$1,820,114	23%
Contractual & Professional	\$210,035	(\$6,275)	\$203,760	\$94,611	\$109,149	46%
Travel	\$87,542	\$9,784	\$97,326	\$1,332	\$95,994	1%
Software Support	\$10,000		\$10,000	\$1,035	\$8,965	10%
Equipment Rental	\$11,100	\$4,300	\$15,400	\$1,507	\$13,893	10%
Association Dues	\$13,645		\$13,645	\$9,995	\$3,650	73%
Liability and Property Ins.	\$16,502		\$16,502	\$4,126	\$12,377	25%
Advertising	\$4,993		\$4,993	\$939	\$4,054	19%
Vehicle Maint.	\$11,477		\$11,477	\$630	\$10,847	5%
Vehicles	\$0	\$40,000	\$40,000	\$0	\$40,000	0%
Maintenance Contracts	\$1,853,869	(\$199,099)	\$1,654,770	\$400,704	\$1,254,067	24%
Hospitality Expense	\$65,500		\$65,500	\$16,231	\$49,269	25%
Miscellaneous Expense	\$55,604	(\$46)	\$55,558	\$3,627	\$51,931	7%
Training and Development	\$25,000	\$15,000	\$40,000	\$2,245	\$37,755	6%
Postage and Freight	\$11,000		\$11,000	\$1,132	\$9,868	10%
Computer Expenses < \$5000	\$429,598	\$32,722	\$462,320	\$449,946	\$12,375	97%
Office Equipment Repairs	\$4,000		\$4,000	\$0	\$4,000	0%
Res./ Ed. Equip. Repairs	\$0		\$0	\$0	\$0	0%
Building Repairs	\$22,000	\$30,000	\$52,000	\$0	\$52,000	0%
Office and Communications Equip.	\$242,000		\$242,000	\$216,177	\$25,823	89%
Research and Educ. Equip.	\$500		\$500	\$0	\$500	0%
Office Furniture	\$4,000		\$4,000	\$0	\$4,000	0%
Books	\$1,500		\$1,500	\$149	\$1,351	10%
Payment of Claims	\$32,489		\$32,489	\$32,489	\$0	100%
Debt Service	\$194,378		\$194,378	\$59,794	\$134,584	31%
Computer Hardware	\$152,315	\$83,352	\$235,667	\$1,580	\$234,087	1%
Computer Software	\$207,119	\$99,352	\$306,471	\$215,265	\$91,206	70%
	\$9,094,998	\$109,091	\$9,204,089	\$2,831,898	\$6,372,191	31%

Cash Balance (EOQ)

\$2,833,616

**West Virginia Network for Educational Telecomputing
FY 2006 Budget Amendments for the Quarter Ending September 30, 2005**

<i>Budget Line Item</i>	<i>Amount</i>	<i>Explanation</i>
<i>Other Revenues</i>	\$109,091	In the WVNET budget revenues and expenses are always equal. The sources of funds to cover any additional expenses are explained along with the expense item. For the first quarter, the largest source is the FY05 surplus. An increase in a pass-through item will result in an increase in revenues. A decrease in a pass-through item will result in a decrease in revenues. Pass-through items are marked by an asterisk.
<i>Contractual and Professional</i>	(\$6,275)	Decreased amount for Deloitte and Touche audit fees. The new figure is based on the engagement letter.
<i>Travel</i>	\$9,784	Additional monies from FY05 surplus.
<i>Equipment Rental</i>	\$4,300	Moved expense for the rental of postage equipment to this line item.
<i>Vehicles</i>	\$40,000	Added monies for the purchase of a new vehicle in FY06. Monies from FY05 surplus.
<i>Maintenance Contracts</i>	(\$199,099)	Net result of: Increase in Banner TCP maintenance due to additional modules.* Decrease in Oracle maintenance.* Moved expense of postage equipment rental from this line item. Removal of WebCT Vista annual support from WVNET budget.* Decrease in Cisco maintenance.* Increase in Oracle maintenance due to additional processors.*
<i>Miscellaneous Expense</i>	(\$46.00)	Decrease due to salary adjustments.
<i>Training and Development</i>	\$15,000	Additional monies from FY05 surplus.
<i>Computer Expenses <5,000</i>	\$32,722	Increase in Microsoft Campus Agreement annual fees over initial projection.* Moved expense for SAS software to this line item.*
<i>Building Repairs</i>	\$30,000	Additional monies from FY05 surplus.
<i>Computer Hardware</i>	\$83,352	Net result of: Increase in revenue due to new Virus and Spam customers. Increase in revenue due to new OZ Problem System customers. Additional monies from FY05 surplus. Increase resulting from maintenance cost and audit fee savings.
<i>Computer Software</i>	\$99,352	Net result of: Increases and decreases in WebCT license fees.* Increase from adjustment of HP software renewal and maintenance.* Increase from adjustment to Cisco maintenance.* Increase in the number of Oracle licenses.* Moved expense for SAS software expense from this line item.* Increase due to salary adjustments
Total:	\$109,091	

**WVNET CALCULATED CASH RESERVE SUMMARY
(FUND 4780)**

Month	Beginning Cash Balance	Revenue	Expenditures	Ending Cash Balance	Actual Cash Flow	Calculated Reserve	Difference
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FY 2004							
Jul-03	2,296,299.13	484,354.06	222,750.92	2,557,902.27	261,603.14	1,918,973.09	638,929.18
Aug-03	2,557,902.27	184,097.05	583,179.20	2,158,820.12	(399,082.15)	1,841,411.52	317,408.60
Sep-03	2,158,820.12	514,620.76	776,101.59	1,897,339.29	(261,480.83)	1,838,891.55	58,447.74
Oct-03	1,897,339.29	838,828.80	641,431.27	2,094,736.82	197,397.53	1,826,865.09	267,871.73
Nov-03	2,094,736.82	366,237.50	871,129.97	1,589,844.35	(504,892.47)	1,950,822.05	(360,977.70)
Dec-03	1,589,844.35	364,060.42	414,594.71	1,539,310.06	(50,534.29)	1,887,387.73	(348,077.67)
Jan-04	1,539,310.06	691,419.96	207,628.33	2,023,101.69	483,791.63	1,855,979.61	167,122.08
Feb-04	2,023,101.69	379,091.15	633,543.27	1,768,649.57	(254,452.12)	1,941,553.35	(172,903.78)
Mar-04	1,768,649.57	717,283.36	755,073.27	1,730,859.66	(37,789.91)	1,757,987.83	(27,128.17)
Apr-04	1,730,859.66	610,215.05	423,070.60	1,918,004.11	187,144.45	1,819,407.77	98,596.34
May-04	1,918,004.11	759,358.29	655,120.31	2,022,242.09	104,237.98	1,770,270.52	251,971.57
Jun-04	2,022,242.09	1,469,679.21	931,284.27	2,560,637.03	538,394.94	1,778,726.93	781,910.10
						AVERAGE:	139,430.84

FY 2005							
Jul-04	2,560,637.03	735,688.19	225,959.78	3,070,365.44	509,728.41	1,779,529.14	1,290,836.30
Aug-04	3,070,365.44	399,737.90	643,229.86	2,826,873.48	(243,491.96)	1,794,541.81	1,032,331.67
Sep-04	2,826,873.48	512,642.82	1,442,850.38	1,896,665.92	(930,207.56)	1,961,229.01	(64,563.09)
Oct-04	1,896,665.92	394,437.98	506,400.55	1,784,703.35	(111,962.57)	1,927,471.33	(142,767.98)
Nov-04	1,784,703.35	679,602.95	181,843.08	2,282,463.22	497,759.87	1,755,149.60	527,313.62
Dec-04	2,282,463.22	875,126.38	1,393,591.43	1,763,998.17	(518,465.05)	1,999,898.78	(235,900.61)
Jan-05	1,763,998.17	814,634.69	1,048,958.93	1,529,673.93	(234,324.24)	2,210,231.43	(680,557.50)
Feb-05	1,529,673.93	1,272,722.06	669,397.22	2,132,998.77	603,324.84	2,219,194.92	(86,196.15)
Mar-05	2,132,998.77	1,003,093.38	583,343.13	2,552,749.02	419,750.25	2,176,262.39	376,486.63
Apr-05	2,552,749.02	457,672.47	262,973.66	2,747,447.83	194,698.81	2,136,238.15	611,209.68
May-05	2,747,447.83	637,724.70	567,993.76	2,817,178.77	69,730.94	2,114,456.51	702,722.26
Jun-05	2,817,178.77	1,381,333.43	605,048.67	3,600,883.59	776,284.76	2,032,897.61	1,567,985.98
						AVERAGE:	408,241.73

FY 2006							
Jul-05	3,600,883.59	418,454.98	1,175,110.61	2,844,227.96	(756,655.63)	2,270,185.32	574,042.64
Aug-05	2,844,227.96	580,113.15	831,333.51	2,593,007.60	(251,220.36)	2,317,211.23	275,796.37
Sep-05	2,593,007.60	695,822.00	455,214.00	2,833,615.63	240,608.00	2,070,302.14	763,313.49
Oct-05	2,833,615.63				0.00		
Nov-05					0.00		
Dec-05					0.00		
Jan-05					0.00		
Feb-05					0.00		
Mar-05					0.00		
Apr-05					0.00		
May-05					0.00		
Jun-05					0.00		
						AVERAGE:	134,429.38

WVNET Computer Advisory Board
January 5th, 2006

ITEM: Audio Conferencing Service

RECOMMENDED RESOLUTION: Information Item

STAFF MEMBER: Henry Blosser

BACKGROUND:

As travel budgets are becoming even more restricted as fuel prices soar, meetings between geographically dispersed individuals have become very difficult. To help facilitate these meetings, WVNET has announced an exciting new service offering. We are now able to deliver audio-conferencing at 5.9 cents per minute.

WVNET can assist our customers in meeting their audio-conferencing needs with an easy-to-use, cost effective solution that requires no scheduling. To request an account, customers simply call our help desk at (304) 293-5192 X248 any time, 24x7x365.

Once a moderator account is set up, it can be used over and over again at any time. It costs nothing to have an account. WVNET will invoice once a month based on account usage. There are no minimum usage requirements.

Meet-Me-On-Demand conferencing allows the establishment of up to a 250 participant conference call at any time. No reservations are necessary. The moderator dials a toll free number to set up the conference and each participant uses a toll free number to join.

Conference leaders will be assigned a pass code that gives them access to many different functions, including:

- Listening to a participant roll call
- Sub-conferencing with participants as desired
- Recording the call for playback (and the option of having a CD created and mailed to you for a fee)
- Locking your call for added security
- Muting your participants (participants can also mute themselves)
- Entering a call reference number – ideal for special billing reference codes

There's also "operator-assisted meet-me conferencing," "operator-assisted dial-out conferencing," and a number of optional enhanced services, such as question-and-answer sessions, participant polling, a post-conference participant list, and many others.

In the near future, WVNET plans to add Web conferencing capabilities as well, also at substantially less than most other providers.

WVNET Computer Advisory Board
January 5, 2006

ITEM: Strategic Planning Update

RECOMMENDED RESOLUTION: Information Item

STAFF MEMBER: Henry Blosser

BACKGROUND:

Over the last several years, evolving technologies have caused WVNET's role to change. Customers are placing additional demands on limited resources, and new technology applications are continually appearing. This agenda item summarizes WVNET's efforts to create a new strategic plan to address these changes.

In order to establish what WVNET's role should be and to provide information to both WVNET staff and customers, we are now developing a strategic plan. The strategic planning process started last spring when WVNET surveyed its customers concerning service offerings. Questions focused on the quality of services, the need for certain current services, and the need for additional services. Additionally, WVNET staff began analyzing the true costs of its services more thoroughly. This has included market analysis and checking to see if the service can be offered by WVNET at less cost than it can be acquired from other sources.

Using the survey results and other information provided by our customers, WVNET staff has begun developing a draft strategic plan. This draft plan will serve as the basis for discussions with various constituent groups about WVNET's strategic direction over the next several years.

The WVNET Computer Advisory Board will be the first group with which this draft will be discussed. Shortly thereafter, discussions will be held with sub-groups of the Computer Advisory Board such as the Computer Center Directors Advisory Forum, the Networking Advisory Forum, and the Academic Users Advisory Forum. Finally, discussions will be held with users of contracted services, including colleges and universities, public education, and state agencies. Once these discussions have been completed, the draft strategic plan will be revised and presented again to the Computer Advisory Board, and ultimately to the Higher Education Policy Commission and Council for Community and Technical College Education, for their approval.

WVNET Strategic Plan Fiscal Years 2006-2008



January 3, 2006

Submitted by
WVNET Management Team

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PURPOSE

This Strategic Plan provides a framework for the future development of the West Virginia Network for Educational Telecomputing (WVNET). WVNET believes that the primary functions of information technology within state institutions are to support the educational and economic objectives of West Virginia and to provide efficient and effective services to its citizens. WVNET further believes that to be successful in fulfilling the promises of technology, a strategic view is necessary to ensure that short-term initiatives remain aligned with WVNET's mission and long-term vision for the application of technology in the state.

The plan attempts to articulate and expand WVNET's continuing effort to take advantage of the economies of scale inherent in both networking and computing and to leverage these economies for the benefit of educational institutions, state agencies, and the citizens of West Virginia. As the capabilities of broadband communications and scalable server architecture have expanded, it has become possible for the state to recognize significant savings by consolidating many of the basic communications and business applications using shared network equipment and facilities, coupled with shared, centrally maintained servers.

This document presents the history of WVNET; describes its current service areas; states the mission, vision, and objectives; and discusses the goals established in support of those objectives by each department.

ORGANIZATIONAL HISTORY

The West Virginia Network for Educational Telecomputing (WVNET) was created in 1975 to supply efficient services to the public institutions of higher education in West Virginia as well as to support certain system-level activities administered by the governing boards and the Higher Education Policy Commission. The WVNET network was originally composed of a central computing site in Morgantown and widely distributed communications facilities to interconnect computing sites at each of the public colleges and universities of West Virginia.

From its inception, WVNET has always been a consistent leader in deploying the technologies needed by its customers. Higher education institutions have traditionally led the way in exploring and exploiting new technologies, and WVNET has been in the forefront. For instance, WVNET was the first organization in West Virginia to implement e-mail, TCP/IP, frame relay, ATM, Internet news service, and Web browsers. In fact, WVNET has led the state in providing almost every new networking technology or functionality for the last thirty years.

Even before there was an Internet, WVNET was part of an early worldwide consortium of higher education institutions that established BITNET for e-mail and file-sharing among the members. WVNET's participation allowed higher education institutions in West Virginia to exchange e-mail and files among themselves and with other institutions worldwide. As the Internet developed, WVNET established a gateway between BITNET and the Internet, again facilitating the smooth migration of WVNET's customers to new networking technologies as they developed.

WVNET was also one of the first dial-up Internet Service Providers (ISPs) in the state, providing desperately needed affordable access to the Internet for state employees and for students at all levels. This project started at a time when no ISP existed in most of the rural areas of West Virginia. WVNET believed that access to the Internet would become an integral part of the lives of most West Virginians. Working with a grant from the National Science Foundation, WVNET dramatically increased the bandwidth to the schools and installed modem pools at every public college in West Virginia.

Over the years, this project has been updated in several ways to continue the service in more cost-efficient ways. In the last few years, WVNET was able to centralize the modem pools at a few locations and continue to provide the service via the switched "1-500" phone numbers.

WVNET's dial-up service is still offered today, and in some areas remains the only local access option. Although other providers now sometimes charge less, WVNET's customers have remained loyal, demonstrating the value of the high level of customer service and technical support that are provided by WVNET's help desk professionals.

In addition to its networking accomplishments, WVNET has also historically provided leadership in computing technologies and techniques. For instance, WVNET installed the seventeenth IBM 3705 communications controller *in the world* and the first IBM 3745 communications controller in the entire IBM Pittsburgh region, as well as the first virtual tape system (tape robot) in the region. More recently, applying its in-house expertise in both mainframe and server-based systems, WVNET was among the first ten operational installations of a Linux virtual machine on an IBM mainframe.

At a time when many of WVNET's customers in both higher education and state government had never seen e-mail, and most still had 3270 terminals instead of PCs, WVNET designed, developed, and implemented a mainframe-based e-mail package called WVMAIL. This package became very popular within the state and supported the full range of functions that later became standard in Internet mail. As PC-based mail clients became more widespread, many customers began using Eudora, which provided an interface to change passwords on server-based Internet mail systems. To ease the transition to full Internet mail for these customers even further, WVNET developed an interface on the mainframe that supported this Eudora option, making the mail server increasingly transparent to the end users, allowing them to mix terminal-based users and PC-based users within the same seamless e-mail environment.

After higher education had moved to Internet-oriented network protocols and asynchronous terminals, state government was still operating in a mainframe environment with the IBM SNA network protocols. To provide a cost-effective transition for its higher education partners, WVNET established a link between its IBM mainframe and the mainframe at the Department of Administration's Information Systems and Communications (IS&C) division. Using this link, WVNET translated the financial transactions from higher education institutions into the state's Financial Information Management System (FIMS). This simplified financial

reporting and saved the cost of overlaid networks with different types of desktop equipment.

WVNET was one of the first higher education organizations in the world to implement a list server for collaboration through e-mail discussion lists, and several worldwide lists originated on the WVNET systems, including Beowulf and Cancer-L. Although the underlying computing infrastructure has evolved from mainframe systems to Linux servers, WVNET still provides list services for organizations as diverse as CERES-L (Collaborative Environments for Conserving Earth Resources), RIPPLE-L (sharing genealogical information about the Ripple surname), and the ETHOS-L (Paleoanthropological & Biological Basis of Ethics & Aesthetics).

CURRENT SERVICE AREAS

While WVNET certainly has its roots in higher education, it can no longer be viewed as a resource available solely to the higher education community. WVNET has become increasingly important to K-12 education, public libraries, and state government. For instance, WVNET hosts applications for K-12, state agencies, and other customers outside post-secondary education. In networking as well, WVNET has extended beyond the essential communications it provides among the state colleges and universities for a variety of research, instructional, and administrative services, and it now also serves the network needs of public libraries, K-12 and technical schools, and state government, both for intrastate applications and for Internet access.

WVNET has been and continues to be a provider of services in three primary areas: shared computing, networking, and support services to higher education. All three areas are likely to be important service areas in the future.

Shared Computing

WVNET provides shared computing resources for those customers who do not find it financially advantageous to pay for the hardware, software, and staff necessary to support their applications. WVNET acts as their one-stop application service provider (ASP).

The advent of distributed computing was driven by communications facilities that were not keeping up with the computing power being delivered to the desktop. In the last few years, the direction of the industry has completely reversed.

The primary factor in this reversal is the delivery of inexpensive high bandwidth communications links. These communications links were obtained by most education institutions to provide fast reliable access to the Internet. What was quickly discovered was that the same links that provided fast access to the Internet made it possible to return to the model of centralized support of applications at one or a few sites. The cost-benefit equation had changed and the ASP concept was re-invented.

One example of WVNET being an ASP for the colleges is the hosted application services that WVNET currently provides a number of colleges

for Banner Student Information System and Banner Financial System. WVNET runs these applications on a centrally located UNIX server. This allows the participating institutions to have access to these complicated applications without needing local UNIX system programming support and with many of the Oracle DBA functions done by WVNET staff.

WVNET is continuing to increase its ability to provide ASP support for the institutions. For instance, the Linux operating system has become a major factor in computing, particularly in academic computing. This free version of a UNIX-like operating system now operates on nearly every computer platform and is being embraced by software developers, including such software giants as Oracle and IBM. WVNET has moved almost every one of its internal applications to various Linux platforms and is working with several schools to migrate their Banner applications to Linux.

Networking

As noted earlier, WVNET has implemented new network technologies in support of its partners' needs for over thirty years. Networking continues to be one of WVNET's core competencies.

The WVNET communications system is an intrastate "network of networks" – a Wide Area Network (WAN) connecting a number of Local Area Networks (LANs). This network encompasses frame relay, ATM, DSL, and other technologies. The ATM components are being replaced over time with new broadband technologies. The backbone is capable of carrying a massive volume of data, voice, and video signals for many sectors, including higher education, K-12, state agencies, the state legislature, and the courts.

In particular, WVNET has worked closely with higher education institutions to ensure that they have the ability to meet their growing demand for bandwidth and their need to share information and coursework among institutions and between the institutions and K-12 schools. Higher education and K-12 currently represent 85% of the use on the state shared network. Higher education has always been, and appears likely to continue to be, the largest user of networking resources, making WVNET, with its historical ties to the educational community, the logical choice to coordinate and manage the state's shared network.

WVNET has become the manager of the network interface providing all of West Virginia with access to external resources. For example, WVNET maintains Internet access for the entire state. This has brought about an increasing involvement with other state agencies. To help facilitate these statewide efforts, WVNET has worked closely with the Governor's Office of Technology since its formation.

Currently, in order to meet the demand of the various state organizations, WVNET provides a total of 1.2 gigabits per second of Internet capacity through a highly fault-tolerant and non-blocking configuration. This consolidated operation has allowed WVNET to aggregate demand for volume purchasing agreements, resulting in more than a million dollars in documented savings for the state in the last two years alone.

An example of the reliability that WVNET designs into its networks is the highly fault-tolerant architecture employed to provide Internet services to the state. This access comprises interconnection with two different external carrier locations, so that service can survive a total failure in either of the carrier's network aggregation points. In addition, WVNET maintains two aggregation points within the state for the statewide Intranet. WVNET is currently working to create a second point of presence (POP) in both the northern and southern parts of the state. Years after WVNET created its system for Internet access, the Commonwealth of Virginia began deploying a similar design. As a result of the effectiveness of this design, there has not been a system-wide failure in the state's Internet service since the design was implemented more than ten years ago.

In support of the shared statewide network, WVNET operates a Network Operations Center (NOC) that monitors network health on a 24-hour basis and that has a staff of network specialists on site or on call who can be dispatched to any point in the state, as needed. WVNET is currently implementing improved network management hardware and software to further enhance the NOC diagnostic capabilities.

As part of these efforts to improve statewide networking, WVNET provides central 24-hour network monitoring, operations, and help desk services; hosts online news facilities; and supplies a variety of newsletters, user guides, and local vendor documentation. WVNET further promotes an understanding of new communications and computing technologies within the state by working with other state agencies to host an annual user conference featuring seminars, demonstrations, hands-on tutorials, and vendor exhibits.

Higher Education Support Services

WVNET provides professional support for local campus computing needs and for users of WVNET's on-site computing systems. Support services include training coordination, 24-hour help desk and operational support, technology purchasing, systems programming, application support (such as Banner Student and Banner Financial), database administration (DBA) services, and information services. These services require dedicated staff with high levels of expertise. By sharing the costs of such services, the member institutions can afford access to the kind of services that are necessary to provide complex technology-based services to their staff, faculty, and students.

WVNET acts as a coordinator for the shared training needs of higher education institutions. Because the institutions run the same software in most cases and have limited funds to train the experts they need to support these products, WVNET has traditionally acted to advise institutions about the training they need and to schedule in-state training as way of saving the institutions substantial amounts of money. In the case of introductory-level training, WVNET uses subject-matter experts on its own staff to train faculty and staff on the local campuses and at central locations.

WVNET's highly regarded help desk staff respond to a variety of requests from users statewide. Whereas many help desk operations are little more than regional call centers in distant cities, relying on scripts and one-size-fits-all responses to allow entry-level personnel to deal with calls, the WVNET help desk operation is staffed by professionals, who are allowed to focus on resolving problems successfully, rather than on minimizing the time for each call, as is commonly emphasized in commercial help desk operations. For instance, WVNET's help desk staff members average more than eight years of experience in the IT industry.

The WVNET help desk operation leverages the specialized skills of the WVNET technical staff to offer a level of service that is not fiscally possible for most of the institutions. For instance, the individual institutions cannot afford to hire the same level of expertise in many areas such as Oracle, Banner, communications, and operating systems, just for their own needs. WVNET can provide these capabilities from a central location and is able to provide a single point to log statewide problems, track problems until they are resolved, and provide the expertise to resolve these problems. Because the issues often involve

hardware and software from many vendors, it could be very expensive to outsource this type of support. Recently, WVNET also began selling 24-hour help desk support to state agencies, recognizing further savings from better personnel utilization.

WVNET acts as a central point to purchase technology for the institutions. WVNET bids, awards, and administers shared contracts in order to allow the efficient purchase of needed items through leveraging the combined demand of the institutions and through professional after-award contract management. This is not only beneficial in the sense that each institution does not have to take the time to do this, but it also encourages the institutions to standardize on similar hardware and software to achieve volume discounts and to facilitate central support. WVNET also issues individual bids for institutions facing unique situations.

WVNET provides centralized applications support to the schools. WVNET provides first-level support for Oracle and Banner, for example, and installs and tests new versions of both applications prior to releasing them to the schools. WVNET aids each school in its local installations with advice and, in some cases, with onsite visits to perform the actual installation. This results in a great reduction in the need for highly skilled personnel at each of the institutions and helps to ensure that the institutions are running the same versions of software.

WVNET also offers centrally maintained, shared interfaces and modifications to vendor code for any of its shared systems. This means that the code is designed in such a way that every institution uses the same code base. Any time that changes are needed to the interfaces or to vendor software, the code can be changed and tested at a single location by a single team of people. For example, WVNET provides support for the interfaces between Banner Financial and the state's FIMS system.

WVNET supplies database administrator services to the schools. WVNET supports Oracle and offers consulting on the use of MySQL. In the past, WVNET supported several additional databases, but has undertaken a major effort to reduce the total number of database systems used by its customers.

WVNET also provides system programming support to the schools. WVNET has experienced systems programmers to support AIX, VMS, Linux, and Windows. In most cases, WVNET tests new releases of an operating system prior to its installation at an institution. WVNET often creates scripts to help in upgrading operating systems on local

computers. WVNET provides advice and support for any problems encountered and, if a campus is short-handed, goes to that campus and helps with the actual installation of a new release of the operating system.

MISSION

WVNET delivers effective, reliable, and efficient communications, computing, and technology consulting services to state institutions and agencies.

VISION

WVNET will be successful in achieving its mission when West Virginia has:

- Citizens with fast, simple access to high-quality educational opportunities when they need it and where they need it.
- Intuitive, transparent, and secure communication among all educational institutions, fostering greater collaboration and facilitating administrative coordination.
- No regional disparities in opportunities for individual growth and community-focused economic development through the effective application of information and communication technologies.

VALUES

WVNET values:

- Education: self-actualization, life skills, and the foundation for sustained economic development
- Customer focus: prizing customers' trust, understanding their needs, and adopting their priorities
- Professionalism: integrity, excellence, and personal and professional growth
- Collaboration: respect for differing opinions and priorities, establishment of mutually rewarding partnerships, and responsibility and accountability to our customers
- Leadership: creativity, adaptability, and imagination
- Innovation: creating solutions, developing opportunities, and eliminating obstacles
- Results: action over activity, function over features, and development over change

OBJECTIVES

In order to execute WVNET's mission in a manner consistent with its vision and its values, WVNET has established a set of results-oriented objectives as a structure for organizing its goal-oriented activities. These overarching objectives are listed below. The numbers of the objectives are for ease of reference by each of the goals, and do not reflect any relative priority.

1. Provide leadership for the state in identifying and implementing appropriate technologies to improve services.
2. Achieve economies of scale in the acquisition and operation of technology-related equipment and services.
3. Manage reliable and predictable computing and communications infrastructure services at economical and stable pricing.
4. Manage technology services to balance the innovation necessary for evolving new capabilities, while maintaining the reliability essential for mission-critical functions in education and government.
5. Develop and retain a skilled and motivated staff.
6. Assist public institutions and non-profit service organizations in continuous improvement of service delivery to citizens and students through the effective application of enabling technologies.
7. Protect the state's computing and communications resources from unauthorized access.
8. Achieve optimum benefit for customers from the consolidation of network management and operations, while leveraging scale and scope to offer reliable, secure, and transparent statewide communications at the best possible value.

GOALS

Network Goals

- Internet2 SEGP.
 - Related objective(s): 1, 3, 4, & 6.
 - Description: Coordinate with Pittsburgh Supercomputer Center, WVU Research, the NASA Fairmont IV&V center, and representatives from educational organizations and libraries within the state to evaluate and, if appropriate, establish a Special Education Group Participant (SEGP) access to the "Abilene" network that provides the transport for Internet2.
 - Cost elements: Minor travel costs for evaluation; possible network equipment upgrades for implementation; pooled pass-through costs for Abilene membership and any additional access facilities.
 - Methods: Renew discussions with potential access points and providers and with the SEGP specialists within Internet2; review carrier options and costs; reconvene the statewide Internet2 Special Interest Group (I2SIG); review options and estimated costs with I2SIG and determine interest; if implementation proves feasible, develop agreements and implement service.
 - Schedule & Milestones: Evaluation complete by May 1, 2006; budgetary information to potential participants by May 31, 2006; and initial implementation, if any, by August 15, 2006, to accommodate fall term.
 - Outcomes: Improved access to educational resources for libraries and students in K-20; better interstate collaboration for research projects; and marketing advantage for higher education institutions competing for quality students and faculty.

- State network consolidation.
 - Related objective(s): 2, 3, 7, 8, & 9.
 - Description: Develop an arrangement in collaboration with the Office of Technology for WVNET to manage all wide-area

communications in the state, including data, voice, and video.

- Cost elements: Being developed in separate document.
 - Methods: Develop proposal. In collaboration with the CTO and key stakeholders as required, review and refine the scope of the service, negotiate appropriate service levels, determine establish a transition plan, and begin the transition.
 - Schedule & Milestones: Being developed in separate document.
 - Outcomes: A consolidated network operation will allow better planning, greater economies of scope and scale, elimination of redundant facilities, and better utilization of the state's hardware and personnel resources. All of these advances contribute to improved communications for the state's educational and administrative units, and at a lower cost.
- Technology Currency.
 - Related objective(s): 1, 2, 3, 4, & 7.
 - Description: Develop and follow a program to upgrade or replace network equipment at the end of its useful life. With the pace of change in communications technologies, components are usually technologically obsolete or operating beyond their initial design parameters after approximately three years. Also, current vendor marketing and pricing practices often make maintenance agreements increasingly uneconomical after the designed life of the systems.
 - Methods:
 - Upgrade/replace Internet gateway routers, from existing 7513 model equipment to 7609 routers with faster processors and greater memory capacity.
 - Cost elements: \$215,000 for equipment upgrades and replacement and for ancillary software; some potential short-term savings from lower maintenance costs; some trade-in allowance will be recognized, based on the then-current market value.

- Schedule & Milestones: The existing equipment has been in service for ten years, and it is expected that within three years, routine incremental upgrades will not be able to accommodate the growth in Internet routing complexity; therefore, upgrade/replacement is projected within two years.
- Outcomes: Continued reliability and high performance for the state's Internet communications.
- Upgrade/replace the supervisory "engines" in the backbone routers in the shared statewide network.
 - Cost elements: \$134,500 for equipment upgrades and replacement and for ancillary software; some trade-in allowance will be recognized, based on the then-current market value.
 - Schedule & Milestones: These upgrades will be necessary within two years.
 - Outcomes: Continued reliability and high performance for the state's backbone network.
- Upgrade/replace backbone network switches handling the state's asynchronous transfer mode (ATM) communications.
 - Cost elements: \$280,000 for equipment upgrades and replacement and for ancillary software; some potential short-term savings from lower maintenance costs; some trade-in allowance will be recognized, based on the then-current market value.
 - Schedule & Milestones: The current LS1010 models have been in use for over ten years, and the manufacturer has announced that it will stop sales of this equipment in fiscal year 2006 and stop software development in fiscal year 2007; therefore, these systems must be replaced in fiscal year 2008.
 - Outcomes: Continued support of ATM protocol in the state's backbone and Internet-access communications.

- Upgrade/replace WVNET PBX.
 - Cost elements: \$50,000 for system upgrade or replacement and for new handsets.
 - Schedule & Milestones: The upgrade or replacement of the current system is scheduled for fiscal year 2008.
 - Outcomes: Continued high quality and reliability of WVNET voice communications, which are vital to WVNET's support operations.

Administration and Finance Goals

- Greater and more effective use of the Banner Finance System.
 - Related Objectives: 1, 5, & 9.
 - Description: Expand WVNET's internal utilization of the capabilities in Banner Finance to improve financial processes and management.
 - Cost elements: Possible training costs, otherwise minor expense.
 - Schedule & Milestones: Completion within three years.
 - Methods:
 - Use budgeting module.
 - Outcomes: Better tracking of expenditures at a more detailed level; separate tracking of activities such as grants or conferences; up-to-date information concerning budget status; and increased relevance and reliability of budget data by having it available on a real-time basis and insurance that indicators are consistently calculated.
 - Increase use of financial reporting options.
 - Outcomes: More timely and more useful data to senior management for decision-making and improved communication of the status of the organization or issues facing the organization.
 - Investigate possible e-mailing of invoices.
 - Outcomes: Increased productivity and efficiency of the business office by saving the time needed to process paper invoices.
 - Investigate switch to statement-type invoices.
 - Outcomes: Provision to customers with more information on the status of their account on a monthly basis and improved customer visibility of previous-period charges resulting in improved accounts receivable with less collection effort.

- Investigate fixed assets module.
 - Outcomes: increased reliability of fixed asset data; better tracking of fixed assets; easier preparation of financial statements; and better reporting of fixed asset data.
 - Cross training of staff.
 - Outcomes: Seamless operation of business office when staff members are absent.
- Analysis and continuous improvement of internal controls and processes.
 - Related Objectives: 1, 5, & 9.
 - Description: Review all procedures and workflows for each accounting cycle both within the Administration and Finance division and for interactions between the Financial division and other groups. Implement a program of continuous improvement. Document all procedures.
 - Cost elements: Minor in terms of dollars; considerable employee time.
 - Schedule & Milestones: Completion within three years.
 - Methods:
 - Review of procedures in all accounting cycles and make improvements where necessary.
 - Outcomes: Improved productivity and efficiency of department and confidence that internal controls are in place and working sufficiently.
 - Documentation of all procedures.
 - Outcomes: Improved compliance and reproducibility of procedures.
 - Work with other departments to improve processes.
 - Outcomes: Improved interdepartmental process flows and communication and better appreciation by all departments of the importance of their roles in multi-departmental processes.
- Increased use of financial reports within Banner.

- Related Objectives: 1, 5, & 9.
- Description: Implement third-party reporting software to enable ad hoc reporting and customized regular reports not directly available through Banner Finance.
- Cost Elements: Approx. \$7,000.
- Schedule & Milestones: Completion in one to two years.
- Methods:
 - Implementation of Evisions' ARGOS reporting software.
 - Outcomes: Ability to generate regular custom financial reports as needed by business office staff; ability to generate ad hoc custom reports from Banner data; decreased reliance on IT staff for reporting; immediate availability of data for improved decision making; more relevant and reliable data as needed; and more flexible and timelier reporting, having better predictive and feedback value.

Help Desk/Operations Goals

- Improved leverage of existing help desk operations.
 - Related objective(s): 2, 3, 5, & 9.
 - Description: Developing and operating a professional, 24-hour-a-day, technology-savvy help desk is difficult and expensive, making it highly inefficient to have separate help desks for separate agencies. WVNET already has an exceptional team with a strong customer orientation. Especially with the transition away from mainframe computing at WVNET, and with the steady shrinkage in dial-up modem accounts as broadband becomes more broadly available, there is a lower utilization of these skilled help desk personnel. To achieve better efficiencies for the state and better utilization of the current WVNET help desk personnel, WVNET will expand its marketing of services that leverage these resources.
 - Cost elements: No incremental costs have been identified.
 - Schedule & Milestones: One additional customer for help desk related services by the end of FY06, four total additional customers by FY07, and eight total additional customers by FY08
 - Methods: develop and market services that utilize WVNET's help desk resources. These might include:
 - Internet-based e-mail and chat support for general PC questions.
 - PC hardware and software depot repair services.
 - Conduct of Web-based courses to teachers, students, and parents for basic PC usage.
 - Equipment collocation services that include on-site support for basic operational functions and tasks.
 - Remote 24-hour server monitoring with first-level response to basic problems and customized notification of customer personnel.
 - Outcomes: Reduced unit-cost for personnel-intensive 24-hour services through improved utilization of existing resources; greater job satisfaction and professional growth for help desk personnel; and lower overall support costs for the state through greater consolidation of operations.

Procurement Goals

- Improved procurement operations to ensure that WVNET's customers receive the best price on the highest quality products.
 - Related objective(s): 2, 3, & 6.
 - Description: Establish a broad range of centralized open-end and other contracts to permit higher education institutions and other customers the best channels possible for all technology needs. These needs include Microsoft, Oracle, SCT, Adobe, WebCT, Impatica, Respondus, Turnitin, Horizon Wimba, and many others as the institutions request. Many of these open end contracts are already in place, but there are many others that can consolidate purchasing options for the institutions.

Note these assumptions:

- The purchasing freedom that was granted to WVU and Marshall in 2005 will be afforded to WVNET in the next legislative session.
- Staff levels will be allowed to increase as workload increases.
- Cost elements: Depending on the success of the initiative, a high degree of the current purchasing effort may migrate from the various customers to the central purchasing effort. This could result in some increase in central staffing, but the net expense is expected to be lower.
- Methods: Collaborate with the Computer Center Directors and Chief Procurement Officers to centralize all high tech procurement at WVNET, leverage the purchasing power of a larger consortium to bargain for the best prices for the highest quality products.
- Schedule & Milestones: Initiate first meetings with potential customers within thirty days of the end of the legislative session that grants WVNET purchasing freedom equivalent to that currently enjoyed by Marshall and WVU. Finalize membership in the new purchasing consortium by the end of the first quarter of the following fiscal year.
- Outcomes: lower costs for participating customers; improved contract management; lower personnel effort in purchasing functions for customers; greater standardization of tools and technical environments for improved collaboration and more

easily shared courseware among educational institutions; and through a central procurement operation, all institutions of higher education can reap the benefits of the flexible streamlined purchasing processes that are currently enjoyed by only the largest institutions.

Systems Goals

- Technology Currency.
 - Related objective(s): 1, 2, 3, 4, & 7.
 - Description: Develop and follow a program to upgrade or replace systems at the end of their useful life. With the pace of change in systems and server technologies, a system is usually technologically obsolete or operating beyond its initial design parameters within three to five years following installation. Also, current vendor practices often make maintenance agreements uneconomical after the designed life of the systems.
 - Methods:
 - Upgrade/replace tape library.
 - Cost elements: \$80,000 for equipment upgrades and replacement and for ancillary software; some potential short-term savings from lower maintenance costs.
 - Schedule & Milestones: The current tape library system has already been installed for more than three years without a technology refresh; therefore, upgrade/replacement is projected within one year.
 - Outcomes: Improved performance and higher reliability for mission-critical server and desktop backups for WVNET, WVNET-hosted customers, and for remote-backup customers.
 - Upgrade/replace storage-area network (SAN).
 - Cost elements: \$150,000 for equipment upgrades or replacement and for ancillary software; some potential short-term savings from lower maintenance costs.
 - Schedule & Milestones: The current SAN has already been installed for more than three years without a technology refresh; therefore, upgrade/replacement is projected within one year.
 - Outcomes: Improved performance and higher reliability for mission-critical data storage for

WVNET-provided services and for customer applications hosted at WVNET.

- Upgrade/replace IBM eServer p650.
 - Cost elements: \$150,000 for equipment upgrades or replacement and for ancillary software; some potential short-term savings from lower maintenance costs.
 - Schedule & Milestones: The current p650 system has already been installed for more than two years without a technology refresh; therefore, upgrade/replacement is projected within two years.
 - Outcomes: Improved performance and higher reliability for mission-critical processing of Banner and Oracle for WVNET-hosted higher education institutions and for WVNET.
- Migrate stand-alone Linux servers to virtual systems on a high-density IBM eServer BladeCenter.
 - Cost elements: \$45,000 for additional blades; some potential short-term savings from lower maintenance costs.
 - Schedule & Milestones: Many of the current stand-alone Intel-based servers are at least three years old; therefore, this migration is projected to be completed within two years.
 - Outcomes: Higher reliability for a variety of applications and WVNET services using these platforms, and significantly improved resource utilization through the virtualization of hardware platforms, allowing more granular resource allocation.
- Sun Messaging Server Implementation
 - Related objective(s): 1, 2, 3, 4, & 7.
 - Description: Leverage recently acquired Sun Messaging Server platform and software beyond the replacement of the out-of-support e-mail server software currently being used by the Department of Education. Additional capabilities will include improving the existing internal WVNET messaging

capabilities and bring some currently outsourced functions in house. This system will also allow WVNET to offer new messaging services to WVNET's customers, with the promise of a scalable, consolidated messaging service for state government.

- Cost elements: The system platform and software have already been acquired; no incremental hardware costs or additional personnel unless there is offsetting revenue; some normal staff repurposing and cost reallocation will occur.
 - Methods: Develop staff skills on new system among systems and operations personnel; upgrade K-12 e-mail service; test e-mail enhancements with in-house WVNET staff; pilot enhanced e-mail capabilities with selected customers; offer new e-mail options statewide; test instant messaging capabilities and options with in-house WVNET staff; pilot instant messaging with selected customers; offer new instant messaging service statewide.
 - Schedule & Milestones: The existing mail service for West Virginia K-12 schools will be the first system migrated because their existing software is already unsupported. WVNET mail services will be migrated next. Both of these will be completed within FY06. The experience from these installations will be leveraged to offer consolidated mail services to educational partners and to governmental customers at the state, county, and municipal levels. The first offerings will be announced in calendar year 2006.
 - Outcomes: Improved reliability and additional functionality, and elimination of out-of-support status for existing K-12 e-mail server software; enhanced features for WVNET mail and savings from bringing currently outsourced functions in-house; and significantly enhanced services to WVNET customers, particularly state government agencies through a combination of new features and the benefits of a scalable consolidated system for secure e-mail and secure instant messaging throughout the state.
- VMS migration to UNIX/AIX/Linux.
 - Related objective(s): 1, 2, 3, 4, & 7.
 - Description: Provide assistance in migrating from VMS to open, UNIX-based operating systems for a clearer long-term support path and broader market support. While WVNET will

continue to support VMS customers for as long as they choose, migrations support will be available whenever a campus wishes to make this change.

- Cost elements: At this time, incremental costs are expected to be offset by incremental savings; existing personnel are being retrained as part of regular professional development activities, and no increase in staff will be required.
- Methods: Monitor customers' interest and customize the standard migration plan to accommodate individual customers' requirements.
- Schedule & Milestones: Some migration has already been accomplished; further migration will occur on a schedule entirely driven by our customers' requirements.
- Outcomes: Lower costs and improved support through the utilization of an increasingly open and growing segment of the operating-system market.

Applications Programming and Support Goals

- Banner Support Enhancement.
 - Related objective(s): 1, 2, 3, & 5.
 - Description: Survey customers to determine areas where additional support may be needed to assist institutions in optimizing their utilization of Banner Finance; create a Banner user group as an advisory group to guide WVNET support activities and gain special services from SungardSCT; increased WVNET support staffing and increased training for existing support staff; and assist institutions in the coming upgrade to version 7.
 - Methods:
 - Inventory campus Banner utilization.
 - Cost elements: no incremental cost to WVNET or the schools. The survey will be conducted by existing staff on a time-available basis.
 - Schedule & Milestones: In the third quarter of fiscal year 2006, WVNET staff will survey the schools for utilization characteristics, such as which software modules are in use or planned to implement, the staffing levels in the user and technical support areas, and the perceived training needs at each of the institutions.
 - Outcomes: A better understanding of how the campuses are using Banner applications software and what their actual needs are for support, training, and other resources.
 - Establish a Banner Users' Group.
 - Cost elements: no incremental cost to WVNET. Members will share incidental meeting costs. The WVNET personnel time will be part of the time already committed to customer relations.
 - Schedule & Milestones: The invitations to form and join a West Virginia Users' Group will be issued long enough before the close of the 2005-2006 academic school year that if there is sufficient interest, the first meeting can be held

before the end of the academic year. Meetings will be held semiannually thereafter.

- Outcomes: Improved communication among WVNET Banner customers and between WVNET and its Banner customers. By becoming an officially chartered organization, the group will become eligible for special services from SungardSCT, the vendor for the Banner software suite.
- Improve Banner support staffing. One additional accountant is needed to serve as a functional specialist for Banner Finance. In addition, existing dayshift help desk and operations staff can be trained to assist with first level Banner support. Using the organizational structure developed for the database administration team, team lead positions need to be established within the major support areas for Banner Finance and Banner Student.
 - Cost elements: \$80,000/year for one new position and upgrades to existing positions.
 - Schedule & Milestones: The need for the improvement in support staffing will be vetted with the Banner Users' Group at its first meeting and reviewed with them as appropriate thereafter. Implementation will occur as rapidly as justification can be agreed upon by WVNET's customers and as funding can be secured.
 - Outcomes: Improved planning and task assignments for ongoing support and special projects and better value derived by the state from Banner implementations through more effective consulting and support.
- Additional training for Banner support staff.
 - Cost elements: No expected increase in the WVNET budget; training costs and personnel time will be funded through WVNET's existing training and travel budget.
 - Schedule & Milestones: Scheduling will be dependent on when the appropriate classes are offered and on WVNET personnel schedules.

- Outcomes: Improved effectiveness and efficiency of services provided by WVNET to Banner customers and improved ability for WVNET to meet campus training and consulting needs at rates that are 75-80% less than the rates currently being paid to outside vendors for such support.
- Implement Banner Version 7
 - Cost elements: no incremental cost, as upgrades are part of normal Banner licensing and WVNET support. Assistance and training for all institutions will be provided, including upgrades for the interfaces between Banner Finance and the state's FIMS system.
 - Schedule & Milestones: Banner 7 will be available for testing in Q3 FY06 with implementation in Q4 FY06 or Q1 FY07 for the institutions using WVNET for Banner hosting.
 - Outcomes: Enhanced "multiple identity management"; value-based security using Oracle Fine-Grained Access Control; improved protection of personally identifiable information; and better vendor support through the use of the latest release.

**WVNET Computer Advisory Board
January 5th, 2006**

ITEM: Higher Education Facilities Information System

RECOMMENDED RESOLUTION: Information Item

STAFF MEMBER: Henry Blosser

BACKGROUND:

The Higher Education Facilities Information System (HEFIS) has been developed to aid West Virginia Colleges and Universities inventory and manage their facilities. Its scope ranges from physical rooms and buildings to planning considerations associated with capital improvement projects and insurance requirements. The system is constantly evolving to meet campus and reporting needs and now offers many other features. A brief presentation will be given to inform you about this system and its capabilities.

WVNET Computer Advisory Board
January 5, 2006

ITEM: Open Source Software Review

RECOMMENDED RESOLUTION: Information Item

STAFF MEMBER: Jay Justice

BACKGROUND:

There has been recent interest in reviewing the alternatives for higher education administrative systems. This has led to a review of the status of open source software (OSS) that may be useful for higher education.

According to generally accepted definitions, to be considered “open source,” software must meet certain conditions, but the key provisions are:

- The source code must either be included or freely obtainable.
- The software license must allow modifications and derived works. It can be customized to an individual institution’s specific requirements.
- The license may not discriminate against any individuals, groups, or organizations. Not only may it be used in not-for-profit education and research, it can also be used for for-profit activities like foundations or business-incubator enterprises.

Typically, OSS is developed, enhanced, and supported through an egalitarian and collaborative effort of unpaid contributors. The contributors are sometimes “compensated” by nothing more than peer recognition, but some may also develop for-profit consulting careers providing assistance with implementation, customization, operation, and training for OSS installations. While the absence of a traditional vendor support infrastructure alarms some potential adopters, others find reassurance in the independence from any particular vendor’s support charges and practices.

Of course, probably the best-known open-source “product” is the Linux operating system, which is becoming very popular with education, government, and even in industry. Linux, a UNIX-like operating system, now operates on nearly every computer platform and is embraced by software developers, including such software giants as Oracle and IBM. Of particular interest to higher education is the acceptance of the platform by application developers like Sungard SCT for their Banner suite. Linux is even being deployed in carrier-grade versions by the major communications and data network providers. The first practical desktop versions of Linux are in early deployment now.

The WVNET system staff has investigated Linux over the last 4-5 years, constantly

monitoring its status and evaluating its potential as a replacement platform for several services. WVNET currently runs Linux on its e-mail gateways, problem management platform, Web Servers, and on the virus and spam filters. WVNET has concentrated on the Red Hat Enterprise version of Linux, since this version is supported by both Oracle and Banner and we want to limit our support to a single server platform where possible. Linux is exciting for higher education due to the advantages of running an operating system at very low cost with access to the source for troubleshooting. WVNET has also begun evaluating Linux as a possible desk top replacement.

A frequent misperception in implementation planning for Linux is that Linux is "free." From a practical perspective, this is not true for Linux in particular or for other OSS in general. For instance, although there is no license fee for the source code, an institution's system support staff will usually require additional training, even those staff members who may already be familiar with UNIX. Also, for mission-critical production systems, the cost of a support agreement with a vendor who packages Linux and provides professional support for that package is a prudent expense.

While access to the source code is free, assembling a useful set of modules into a comprehensive and supported package requires a fairly sophisticated understanding of the interaction of the components and a commitment to constant evaluation of contributor-submitted modifications to various companion modules and utilities. Unless an institution has considerable on-staff expertise, this packaging and support is more economically provided by packagers such as Red Hat. Nevertheless, WVNET's experience is that, properly implemented, Linux has the ability to provide a very cost-effective and highly robust operating system.

OPEN-SOURCE APPLICATIONS OF INTEREST TO HIGHER EDUCATION:

Despite the success of Linux as an open-source operating system, a review of the current market and literature indicates that there are still relatively few open-source administration applications of interest to higher education. The leading open-source applications oriented toward the higher education administrative market are listed below.

- **Kuali.** Kuali is a \$7.2 million project to create a modular financial administration system for higher education. The Kuali software is in active development by a consortium of schools and organizations, including Indiana University, Michigan State University, the University of Arizona, San Joaquin Delta College, Cornell University, the University of Hawaii, NACUBO, and the R•Smart Group (a consulting group offering planning, implementation, and operations and support services for education). Kuali is planned to include a flexible chart of accounts, a general ledger, accounts receivable, capital asset management, pre- and post-award administration, purchasing, accounts payable, cash receipting and disbursement, travel requisition and reimbursement, auxiliary Accounting, Web-based e-commerce, and budget construction and administration. It is being designed to be fully compliant with both FASB and GASB reporting. In March,

2005, the initiative received a \$2.5 million grant from the Andrew W. Mellon Foundation.

The project team expects to release the base modules in early 2006, with completion projected in the summer of 2007. The project will also offer templates and training concurrent with the release of the software. Consistent with the open-source approach, the software and associated materials will be made available to colleges and universities without any licensing fees. You can read more about this project at the Chronicle of Higher Education website.

- Sakai. Indiana University was part of the core group whose goal is to create what they refer to as a “Collaboration and Learning Environment (CLE) for higher education” that is intended to extend the existing model for course-management software.

The Sakai Project has already issued four major releases with last being version 2.1, and future plans include enhancements to the interoperability framework, new tools, and additional extensions. For educational institutions wishing to participate in the definition and planning of further development, the Project offers the Sakai Educational Partners Program (SEPP) for \$10,000 per year for three years (\$5,000 for institutions with fall enrollments less than 3,000 students). Over 100 institutions and companies have become partners in the first two years of the project.

- Moodle. Moodle is also a course-management system (CMS). Its latest release was version 1.5.2 on July 16, 2005, which is currently available. Moodle is designed for the LAMP platform (Linux, Apache, MySQL, and PHP), but is scalable and tested regularly in Windows XP and Mac OS X environments.
- Open Source Portfolio Initiative (OSPI). This is e-portfolio software based on the University of Minnesota Enterprise System's electronic portfolio software which represents six years of development. For those unfamiliar with the e-portfolio concept, it encompasses a student's reflections, much like a Web log (or “blog”), work products, common-interest groups (which may also include class collaboration), academic achievements, and career-related items, often including a résumé-in-progress. It is a Java-based system which seems to be having some difficulty maintaining its development momentum. The project's development roadmap originally called for, and still reflects, an April, 2005 release of version 2.0, integrated with the Sakai software. The actual release date was June 8. Moving forward, OSPI anticipates that it will continue to be available as a standalone product and as an integrated offering with the Sakai CLE. Beginning in January, 2006, OSPI discussion groups and work groups will be managed within the Sakai initiative.
- uPortal. This portal software, being developed by members of the Java Alliance Special Interest Group (JA-SIG), adds user-customizable views and community collaboration capabilities to the traditional campus Web presence. The software is based on Java, XML, JSP and J2EE, and it is available in both a software-only

version and in a “quick-start” version which includes the Tomcat Servlet Engine and the HSQLDB database. The Tomcat Servlet is an implementation of Java for the Apache Web Server. HSQLDB is an implementation of an SQL relational data base in JAVA. The current stable release of the software-only version is 2.5.1 which was released September 10, 2005.

- LionShare. LionShare is an open-source peer-to-peer file-sharing system intended to facilitate the legitimate sharing of a variety of academic information, such as collections of data, images, and video archives. The software provides features such as the use of directory servers, user-authentication, and owner control over the sharing process and permissions. Originally begun experimentally at Penn State University, it is now being developed by a consortium including MIT’s Open Knowledge Initiative, the Internet P2P Working Group, and Simon Fraser University. The Andrew W. Mellon Foundation is funding the first two years of development for the project. The current software version is 1.0 Beta, released October 7, 2005.

Some useful insights into the status and the future of open-source applications in higher education are available from the preliminary analysis of a recent survey of 79 respondents conducted by the Alliance for Higher Education Competitiveness from their membership. Among their key findings are:

- The open source course management system (CMS) Sakai emerged as the most recognized and most likely to succeed of the open source initiatives listed in the survey. Impressively, over 75% of the respondents had heard of Sakai, well ahead of the other six initiatives.
- The open source portal/portal framework uPortal was also highly recognized and expected to succeed in the marketplace. uPortal came out on top from those respondents that rated their knowledge as excellent or expert.
- Among those most knowledgeable, the open source ePortfolio initiative OSPI was perceived as having a strong probability of success, ranked third behind uPortal and Sakai.
- The relatively new open source CMS Moodle came in surprisingly strong in terms of expectation to succeed, especially among those who were least expert in their knowledge of open source. Moodle had a recognition level as high as uPortal, which was well ahead of the four remaining initiatives.
- Vulnerability of a category seemed to track inversely to how well penetrated or established a category is with existing commercial products. The only major inconsistency with this was the strength of the CMS initiatives, Sakai and Moodle, in a category that according to previously published studies is highly penetrated by existing products. This indicates a potentially interesting

competitive dynamic developing between the incumbents and the open source initiatives.

Regarding the vulnerability of student-information systems to open-source products, this category was ranked least vulnerable by the “most knowledgeable” respondents and next-to-last by the “least knowledgeable.” Aside from the observation that vulnerability tends to be inversely proportional to market penetration of commercial products, no explanation was offered for this finding.

USEFUL RESOURCES:

The Quali Project: <http://www.kualiproject.org/>

The Sakai Project: <http://www.sakaiproject.org/>

Moodle: <http://moodle.org/>

The Open Source Portfolio Initiative: <http://www.theospi.org/>

uPortal: <http://www.uportal.org/>

LionShare: <http://lionshare.its.psu.edu/main/>

Alliance for Higher Education Competitiveness: <http://www.a-hec.org/>

Will Open Source Software Become An Important Institutional Strategy in Higher Education? (May, 2005 paper): http://www.a-hec.org/media/files/A-HEC_open_source_0505.pdf

Preliminary Analysis of the Open Source in Higher Education Survey Conducted from April 15, 2005 to May 1, 2005 by the Alliance for Higher Education Competitiveness (May, 2005 paper): http://www.a-hec.org/media/files/A-HEC_os_survey_report_050305.pdf

The Open Source Congress (August, 2005 paper): <http://www.educause.edu/ir/library/pdf/erm05414.pdf>